

## ESDULC5V0F1

### Features

- DFN1006-3L package
- Response time is typically < 1ns
- Ultra-low leakage current
- Low operating voltage: 5V
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 20\text{kV}$
  - Contact discharge:  $\pm 15\text{kV}$

### Description

The ESDULC5V0F1 is an ultra-low capacitance TVS (Transient Voltage Suppressor) array designed to protect high speed data interfaces. It has been specifically designed to protect sensitive electronic components which are connected to data and transmission lines from over-stress caused by ESD.

### Absolute Maximum Ratings

$T_{amb}=25^{\circ}\text{C}$  unless otherwise specified

| Parameter                                                | Symbol    | Value       | Unit               |
|----------------------------------------------------------|-----------|-------------|--------------------|
| Peak Pulse Power (8/20 $\mu\text{s}$ )                   | $P_{PK}$  | 70          | W                  |
| Maximum Reverse Peak Pulse Current (8/20 $\mu\text{s}$ ) | $I_{PP}$  | 4           | A                  |
| ESD per IEC 61000-4-2 (Air)                              | $V_{ESD}$ | $\pm 20$    | KV                 |
| ESD per IEC 61000-4-2 (Contact)                          |           | $\pm 15$    |                    |
| Storage Temperature Range                                | $T_{STJ}$ | -55 to +150 | $^{\circ}\text{C}$ |
| Operating Temperature Range                              | $T_J$     | -55 to +125 | $^{\circ}\text{C}$ |

### Electrical Characteristics

$T_A=25^{\circ}\text{C}$  unless otherwise specified

| Symbol    | Parameter                    | Conditions                                               | Min | Typ  | Max  | Units         |
|-----------|------------------------------|----------------------------------------------------------|-----|------|------|---------------|
| $V_{RWM}$ | Reverse Working Peak Voltage | -                                                        |     |      | 5.0  | V             |
| $V_{BR}$  | Reverse Breakdown Voltage    | $I_T = 1\text{mA}$                                       | 6.0 | 7.5  | 9    | V             |
| $I_R$     | Reverse Current              | $V_{RWM} = 5\text{V}$                                    |     |      | 0.1  | $\mu\text{A}$ |
| $V_{C1}$  | Clamping Voltage             | $I_{PP}=1\text{A}$ , $t_P = 8/20\mu\text{s}$             |     |      | 9    | V             |
| $V_{C2}$  | Clamping Voltage             | $I_{PP}=4\text{A}$ , $t_P = 8/20\mu\text{s}$             |     |      | 14   | V             |
| $C_J$     | Diode Capacitance            | $V_R = 0\text{V}$ , $f = 1\text{MHz}$<br>Pin1or2 to Pin3 |     | 0.5  | 0.65 | pF            |
|           |                              | $V_R = 0\text{V}$ , $f = 1\text{MHz}$<br>Pin1 to Pin2    |     | 0.25 | 0.40 |               |

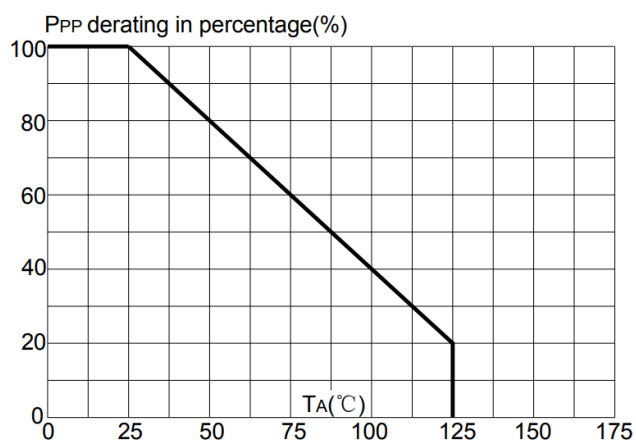
### Applications

- USB2.0 Power and Data Line Protection
- Digital camera
- PDA
- Other electronics equipments

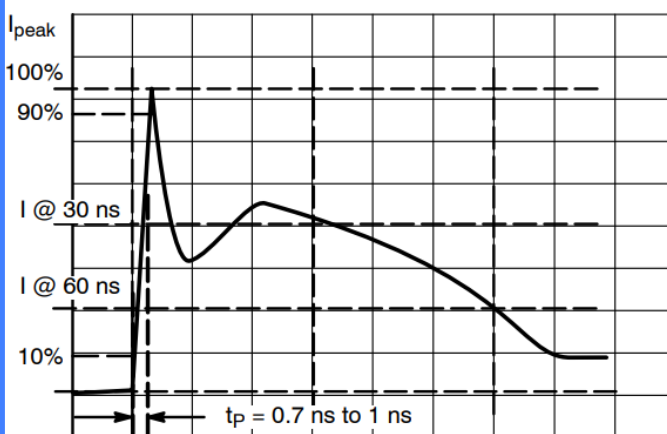
### Circuit Diagram



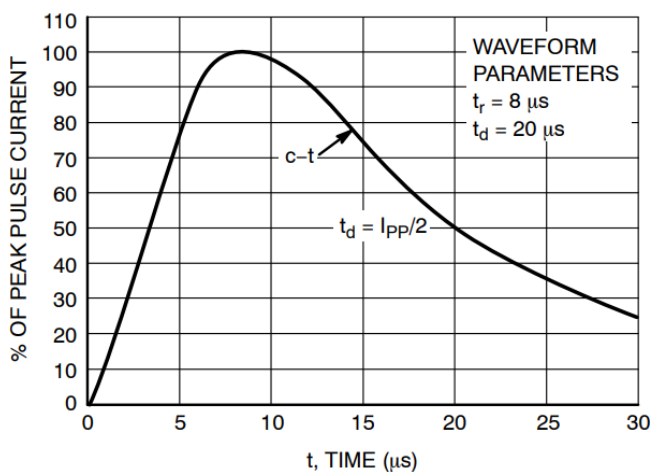
## Characteristic Curves



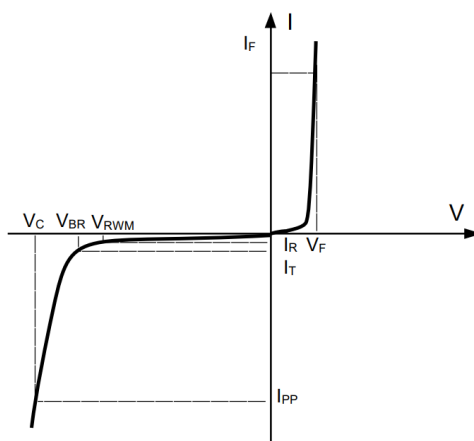
Power Derating Curve



IEC61000-4-2 Pulse Waveform

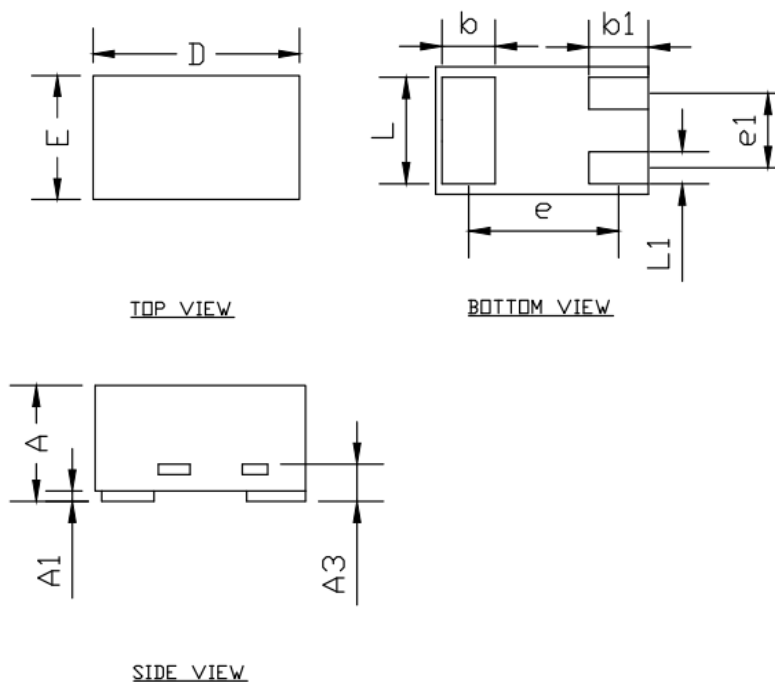


8/20μs Pulse Waveform



V-I Characteristics for Unidirectional Diode

## DFN1006-2 Package Outline & Dimensions



| SYM | DIMENSIONS  |      |      |
|-----|-------------|------|------|
|     | MILLIMETERS |      |      |
|     | MIN         | NOM  | MAX  |
| A   | 0.40        | -    | 0.50 |
| A1  | 0.00        | -    | 0.05 |
| A3  | 0.127REF    |      |      |
| D   | 0.95        | 1.00 | 1.05 |
| E   | 0.55        | 0.60 | 0.65 |
| b   | 0.20        | 0.25 | 0.30 |
| b1  | 0.20        | 0.30 | 0.40 |
| L   | 0.45        | 0.50 | 0.55 |
| L1  | 0.10        | 0.15 | 0.20 |
| e   | 0.675       |      |      |
| e1  | 0.35        |      |      |

## Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.